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(54) **Method and apparatus for sensing relative position between two relatively rotatable members using concentric rings**

(57) An apparatus for sensing the relative rotational position between a stator (28) and a rotor (32) in a variable reluctance motor (26) includes a transmitting ring (40) mounted to the rotor (32) and having a transmitting coil (46) mounted thereon. A receiving ring (42) is mounted to stator (46) and has a receiving coil (56) mounted thereon. The receiving coil includes three conductor patterns (56a, 56b, 56c) having the same shape, each of said conductor patterns being electrically insulated from each other, and each conductor pattern being offset from adjacent conductor patterns by 120 electrical degrees. A drive signal is coupled to the transmitting coil. The apparatus further includes a controller (76) for monitoring the outputs from the receiving coil patterns and for determining the relative rotation between the rotor and the stator from the monitored outputs. The receiving coil patterns are each arranged in a circumferentially varying square wave pattern.

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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 554 900 A (MAGNET MOTOR GMBH) 11 August 1993 * column 4, line 45 - column 6, line 27; figures 1-5 *	1-3,5,6, 19,20	G01B7/00 G01D5/00 G01D5/20
Y		9,10	
A		4,7, 12-17,21	
D,X	--- US 5 257 828 A (MILLER JOSEPH D ET AL) 2 November 1993 * column 5, line 38 - column 7, line 61; figures 4-9 *	1-8, 12-21	
D,Y	--- US 2 650 352 A (R.S. CHILDS) * column 2, line 33 - column 3, line 8; figure 1 *	9,10	
A		1,12,19, 21	
A	--- FR 2 381 284 A (AGA AB) 15 September 1978 * page 10, line 1 - line 25; figure 2 * -----	1-3, 11-15, 19-21	TECHNICAL FIELDS SEARCHED (Int.Cl.6) G01D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 30 January 1997	Examiner Chapple, I
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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